

The background image shows a complex industrial facility with numerous large pipes, metal walkways, and structural beams. The lighting is warm and yellowish. Overlaid on the image are three semi-transparent circles: a large white one in the center, a smaller red one to its upper left, and another smaller white one to its lower left. The text is centered within the largest white circle.

Experiences
and tools from
Denmark

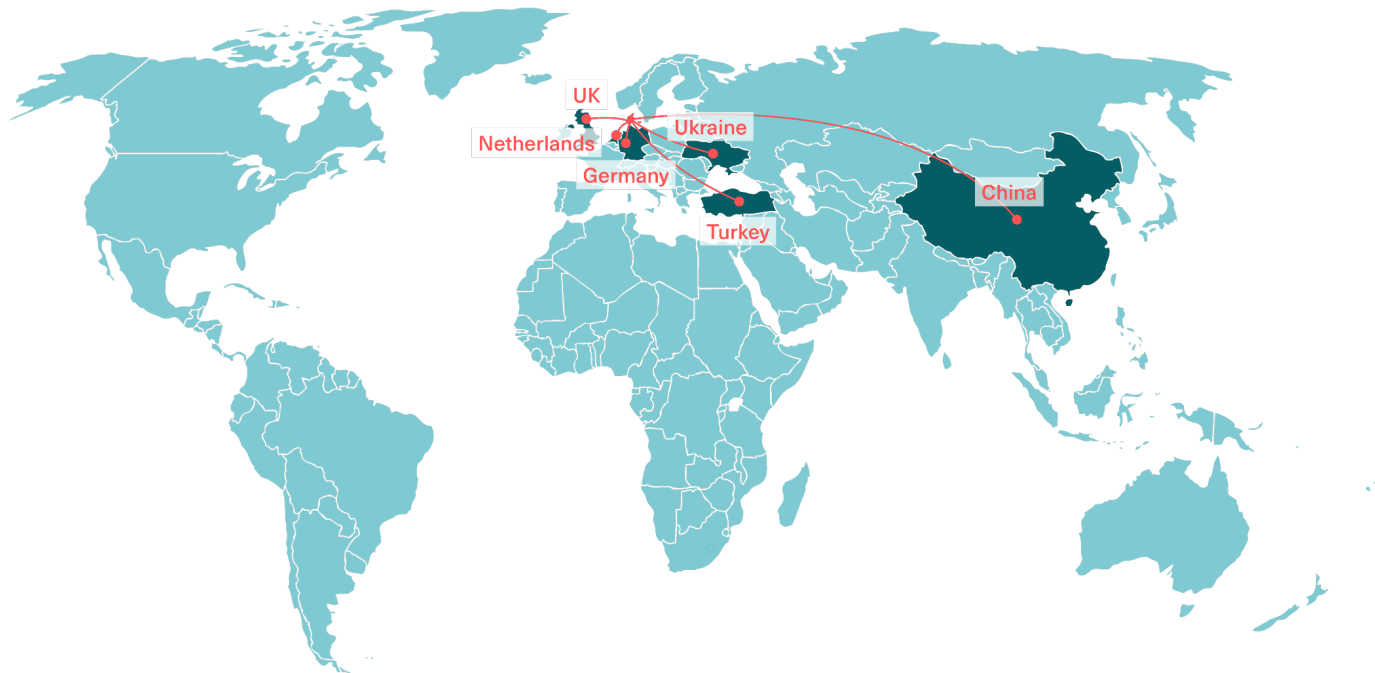


DISTRICT HEATING IN DENMARK

- 33,000 km across Denmark
- 64 % of all houses DH-heated
- District Heating: 17 % of DK's final energy demand

Global Cooperation - District Heating

Where do we operate?



What we do in the Danish Energy Agency

SOCIO-
ECONOMICS



BENEFITS AND CHALLENGES
FOR THE ENERGY SYSTEM



MUNICIPAL
PLANNING



REGULATION AND
HISTORY



INSTITUTIONAL
ROLES



LESSONS
LEARNED



Background on knowledge centre in China

- Partners:
 - Danish Energy Agency (DEA)
 - Copenhagen Centre on Energy Efficiency (C2E2)
 - China Renewable Energy Engineering Institute (CREEI)
- Aims
 - Provide a neutral and centralised platform for knowledge regarding the exchange of Sino-Danish experiences on district heating
 - Preserving and formalising some of the knowledge and materials created in the project to ensure its availability after the project life-time


Work scope

1. On-line platform of knowledge sharing with open access for Chinese users
2. On-site technical support to build capacities on energy mapping and planning to local stakeholders in Beijing China



Virtual knowledge sharing platform

- Knowledge Management System (KMS) hosted by C2E2 with separate entrance
 - Brief introduction of the energy mapping and planning and its potential in China
 - 45-minute PPT with pre-recorded presentations on the specific technologies, benefits and outcomes in energy mapping and planning, and potential applications in China
 - Training modular for DHAT
 - Case studies for specific technologies in DH ('technology approaches')
 - Case studies for specific approaches and methodologies



District Heating
Assessment Tool
(DHAT)

District Heating Assessment Tool (DHAT)

DHAT is an Excel-based tool that

- Compares heat sources and evaluates the technical and economical performance hereof
- Illustrates some of the main aspects when doing heat planning
- Must be used in early planning stages (prefeasibility studies)
- Includes Danish default data to get the project calculations going
- Enables you to get an overview of your desired heat system

DHAT is divided in three areas:

Production

Distribution

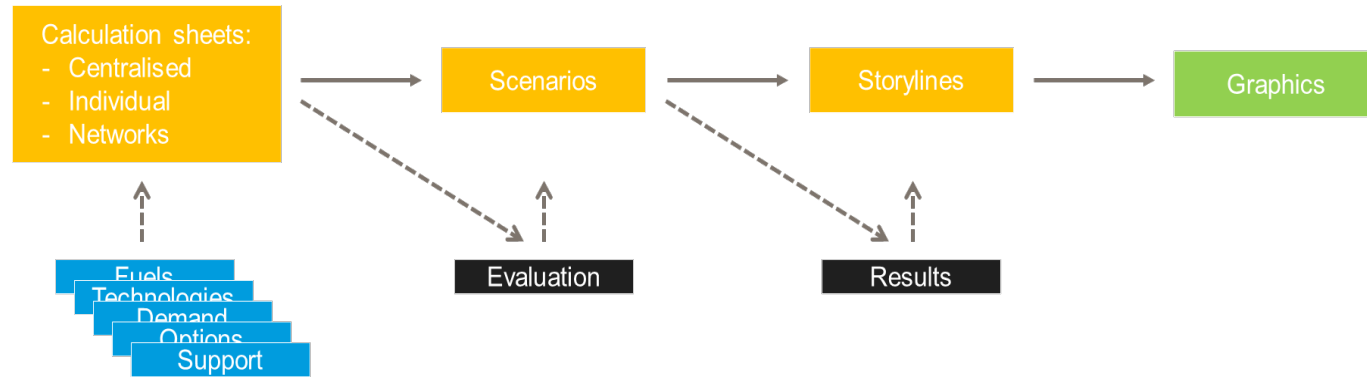
Demand

Modelling in general (compared to business cases)

Main considerations regarding modelling tools:

- Simplification and standardization
- Results are indicative
- Degree of detail (in results) is at some point limited due to uncertainties (in inputs)
- Modelling gives you estimates and cannot replace specific project calculations

Structure



Centralised plant mixes

Timing, merit order and fuel use by technology.

Figure C1 Effect use by hour, MV
Source: Table C4

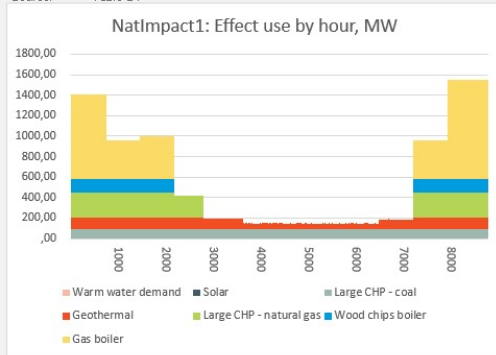


Figure C: Effect use by ordered hour, MW
Source: Table C6

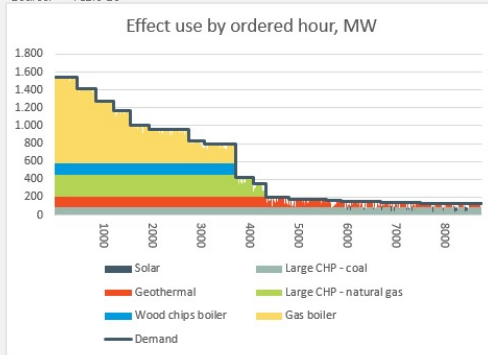
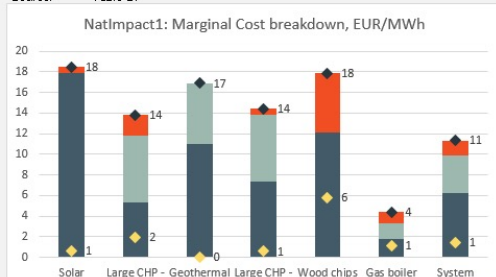


Figure C3 Marginal Cost Breakdown, EUR/MWh
Source: Table C7



Edit Centralised / DH Mixes

Centralised

Select Mix: 03 - NatImpact1

DH Plant Mix: NatImpact1

Demand (GWh/year): 4400

Climate Zone: Climate zone 1

Network Heat Loss (%*): 12,00%

Demand for warm water

Warm Water Demand (%*):

Technology:

Solar: [dropdown]

Large CHP - coal: [dropdown]

Geothermal: [dropdown]

Large CHP - natural gas: [dropdown]

Wood chips boiler: [dropdown]

Gas boiler: [dropdown]

MW:

110

90

110

250

130

1400

0

0

0

0

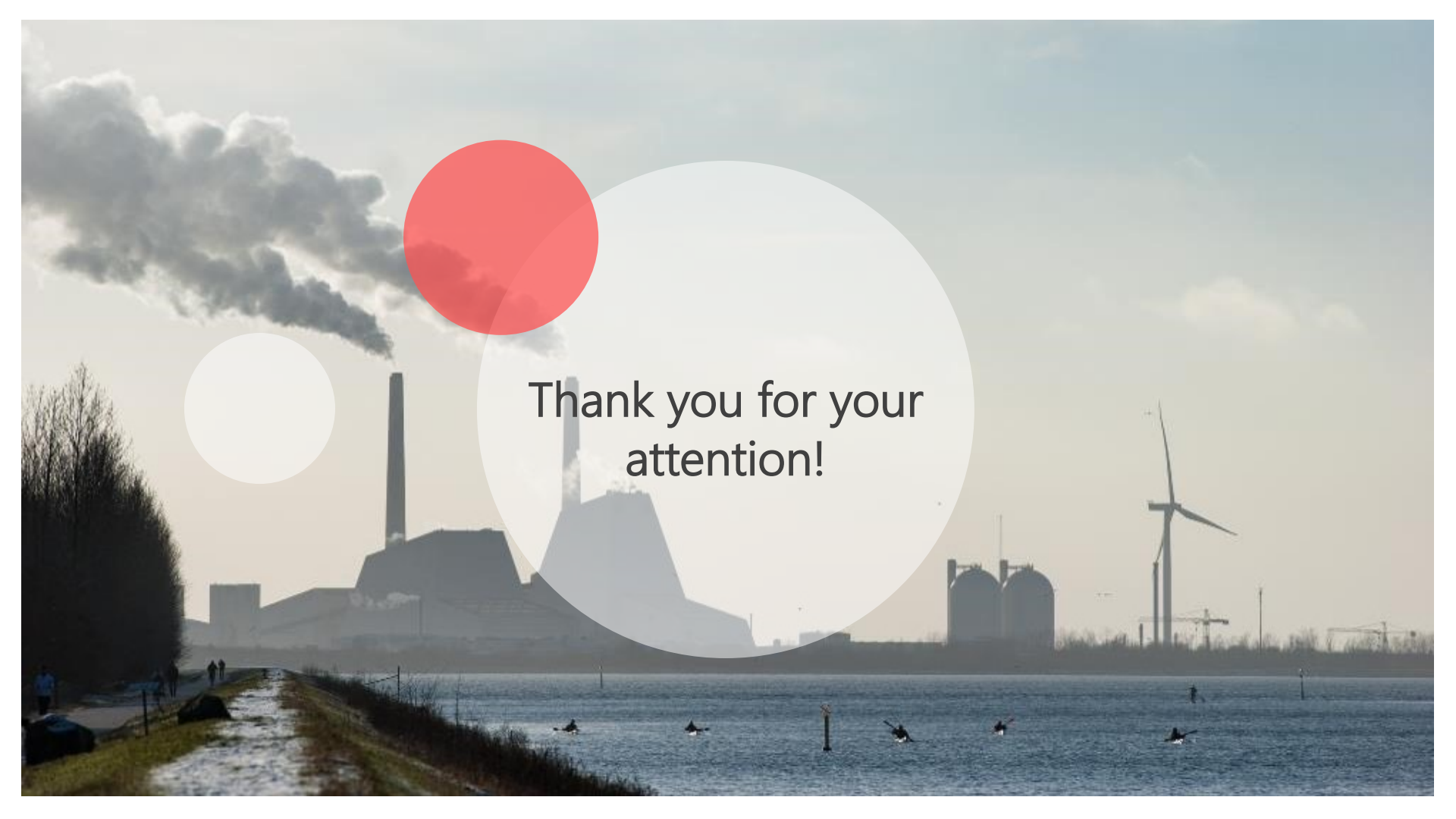
Load Mix

Refresh

Save Changes

Clear Current Input

*) this field should contain a % sign



Thank you for your
attention!